

CLAIMS

What is claimed is:

1. A carrier virtual network interface system to allow an accessing telecommunication network managed by a network management system to indirectly manage the layer one resources dedicated to a carrier virtual network, the layer one resources dedicated to the carrier virtual network being directly managed by the network management system of each of at least one dedicating telecommunication network, the interface system comprising:

a dedicating network interpretation layer that interfaces with the network management system of a dedicating telecommunication network, the dedicating network interpretation layer converting network information regarding layer one resources dedicated to the carrier virtual network from the dedicating telecommunication network to messages for transmission to the network management system of the accessing telecommunication network and converting messages from the network management system of the accessing telecommunication network to network instructions for use by the network management system of the dedicating telecommunication network;

an accessing network interpretation layer that interfaces with the network management system of the accessing telecommunication network; the accessing network interpretation layer converting messages received from the network management system of the dedicating telecommunication network to network information for use by the network management system of the accessing telecommunication network and converting network instructions from the network management system of the accessing telecommunication network to messages for transmission to the network management system of each of the at least one dedicating telecommunication networks; and

a communication layer that transmits messages from the dedicating network interpretation layer to the accessing network interpretation layer and from the accessing network interpretation layer to the dedicating network interpretation layer.

2. The carrier virtual network interface of claim 1, further comprising:

a second dedicated network interpretation layer that interfaces with the network management system of a second dedicating telecommunication network, the second dedicated network interpretation layer converting network information regarding layer one resources dedicated to the carrier virtual network from the second dedicating telecommunication network to messages for transmission to the network management system of the accessing telecommunication network and converting messages from the network management system of the accessing telecommunication network to network instructions for use by the network management system of the second dedicating telecommunication network.

3. The carrier virtual network interface of claim 1, wherein:

the dedicated network interpretation layer converts network information to XML messages; and

the accessing network interpretation layer converts network instructions to XML messages.

4. The carrier virtual network interface of claim 2, wherein:

the dedicated network interpretation layer converts network information to XML messages;

the second dedicated network interpretation layer converts network information to XML messages; and

the accessing network interpretation layer converts network instructions to XML messages.

5. The carrier virtual network interface of claim 1, wherein:

the dedicated network interpretation layer converts network information to ASCII text messages; and

the accessing network interpretation layer converts network instructions to ASCII text messages.

6. The carrier virtual network interface of claim 2, wherein:

the dedicated network interpretation layer converts network information to ASCII text messages;

the second dedicated network interpretation layer converts network information to ASCII text messages; and

the accessing network interpretation layer converts network instructions to ASCII text messages.

7. The carrier virtual network interface of claim 1, wherein the communication layer transmits messages using a CORBA protocol.

8. The carrier virtual network interface of claim 2, wherein the communication layer transmits messages using a CORBA protocol.

9. The carrier virtual network interface of claim 1, wherein the communication layer transmits messages using a JMS protocol.

10. The carrier virtual network interface of claim 2, wherein the communication layer transmits messages using a JMS protocol.

11. The carrier virtual network interface of claim 1, wherein the communication layer transmits using a Telnet protocol.

12. The carrier virtual network interface of claim 2, wherein the communication layer transmits messages using a Telnet protocol.

13. A carrier virtual network interface system to allow an accessing telecommunication network managed by a network management system to indirectly manage the layer one resources dedicated to a carrier virtual network, the layer one resources dedicated to the carrier virtual network being directly managed by the network management system of each of at least one dedicating telecommunication network, the interface system comprising:

- a dedicating network business layer, the dedicating network business layer transmitting signals between the network management system of the dedicating telecommunication network and the layer one resources of the dedicating telecommunication network, the signals transmitted over the dedicating network business layer permitting the network management system of the dedicating telecommunication network to directly manage the layer one resources of the dedicating telecommunication network;

- an accessing network business layer, the accessing network business layer transmitting signals between the network management system of the accessing telecommunication network and the layer one resources of the accessing telecommunication network, the signals transmitted over the accessing network business layer permitting the network management system of the accessing telecommunication network to directly manage the layer one resources of the accessing telecommunication network;

- a dedicating network interpretation layer, the dedicating network interpretation layer converting signals received from the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network to messages having a predetermined format and converting messages having a

predetermined format to signals for transmission to the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network;

an accessing network interpretation layer, the accessing network interpretation layer converting network instructions from the network management system of the accessing telecommunication network intended for the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network to messages having a predetermined format and converting messages having a predetermined format to network information signals; and

a communication layer, the communication layer transmitting messages having a predetermined format between the dedicating network interpretation layer and the accessing network interpretation layer, whereby the network management system of the accessing telecommunication network indirectly manages the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network by:

the network management system of the accessing telecommunication network issuing network instructions intended for the layer one resources of the dedicating telecommunication network, the network instructions being directed to the accessing network interpretation layer;

the accessing network interpretation layer converting the network instructions to messages having a predetermined format, the messages being directed to the communication layer;

the communication layer transmitting messages from the accessing network interpretation layer to the dedicating network translation layer;

the dedicating network interpretation layer converting the messages received from the communication layer to network instructions for transmission over the dedicating network business layer, the accessing network interpretation layer directing the network instructions to the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network;

the layer one resources of the dedicating telecommunication network transmitting network information over the dedicating network business layer to the dedicating network interpretation layer;

the dedicating network interpretation layer converting the network information to messages having a predetermined format, the messages being directed to the communication layer;

the communication layer transmitting messages from the dedicating network interpretation layer to the accessing network interpretation layer;

the accessing network interpretation layer converting the messages received from the communication layer to network information, the accessing network interpretation layer directing the network information to the management system of the accessing telecommunication network; and

the management system of the accessing telecommunication network receives network information regarding the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network from the accessing network translation layer.

14. A method for interfacing the management of layer one telecommunication resources in a carrier virtual network, wherein the management system of an accessing telecommunication network may indirectly manage layer one resources dedicated to the carrier virtual network by at least one dedicating telecommunication network having a dedicating telecommunication network management system, the method comprising:

- converting network information regarding layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network to messages having a predetermined format;

- transmitting messages having a predetermined format to the management system of an accessing telecommunication network;

- converting messages transmitted to the management system of the accessing telecommunication network to a format useable by the accessing telecommunication network management system;

- issuing network instructions for the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network from the network management system of the accessing telecommunication network;

- converting the network instructions to messages having a predetermined format;

- transmitting messages having a predetermined format to the management system of a dedicating telecommunication network;

- converting the messages transmitted to the management system of the dedicating telecommunication network to network instructions to a format useable by the dedicating telecommunication network management system; and

transmitting the network instructions to the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network to those layer one resources.

15. The method for interfacing the management of layer one telecommunication resources of claim 14, wherein the predetermined format of messages is XML.

16. The method for interfacing the management of layer one telecommunication resources of claim 15, wherein the steps of transmitting messages having a predetermined format to the management system of an accessing telecommunication network and of transmitting messages having a predetermined format to the management system of a dedicating telecommunication network comprises transmitting messages using a CORBA protocol.

17. The method for interfacing the management of layer one telecommunication resources of claim 15, wherein the steps of transmitting messages having a predetermined format to the management system of an accessing telecommunication network and of transmitting messages having a predetermined format to the management system of a dedicating telecommunication network comprises transmitting messages using a JMS protocol.

18. The method for interfacing the management of layer one telecommunication resources of claim 15, wherein the steps of transmitting messages having a predetermined format to the management system of an accessing telecommunication network and of transmitting messages having a predetermined format to the management system of a dedicating telecommunication network comprises transmitting messages using a Telnet protocol.

19. The method for interfacing the management of layer one telecommunication resources of claim 14, wherein the predetermined format of messages is ASCII text.

20. The method for interfacing the management of layer one telecommunication resources of claim 19, wherein the steps of transmitting messages having a predetermined format to the management system of an accessing telecommunication network and of transmitting messages having a predetermined format to the management system of a dedicating telecommunication network comprises transmitting messages using a CORBA protocol.

21. The method for interfacing the management of layer one telecommunication resources of claim 19, wherein the steps of transmitting messages having a predetermined format to the management system of an accessing telecommunication network and of transmitting messages having a predetermined format to the management system of a dedicating telecommunication network comprises transmitting messages using a JMS protocol.

22. The method for interfacing the management of layer one telecommunication resources of claim 19, wherein the steps of transmitting messages having a predetermined format to the management system of an accessing telecommunication network and of transmitting messages having a predetermined format to the management system of a dedicating telecommunication network comprises transmitting messages using a Telnet protocol.

23. At least one machine readable media containing machine readable code embodied thereon for causing a carrier virtual network system to perform a method for interfacing the management of layer one telecommunication resources in a carrier virtual network, wherein the management system of an accessing telecommunication network may indirectly manage layer one resources dedicated to the carrier virtual network by at least one dedicating telecommunication network having a dedicating telecommunication network management system, the method comprising:

- converting network information regarding layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network to messages having a predetermined format;

- transmitting messages having a predetermined format to the management system of an accessing telecommunication network;

- converting messages transmitted to the management system of the accessing telecommunication network to a format useable by the accessing telecommunication network management system;

- issuing network instructions for the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network from the network management system of the accessing telecommunication network;

- converting the network instructions to messages having a predetermined format;

- transmitting messages having a predetermined format to the management system of a dedicating telecommunication network;

converting the messages transmitted to the management system of the dedicating telecommunication network to network instructions to a format useable by the dedicating telecommunication network management system; and

transmitting the network instructions to the layer one resources of the dedicating telecommunication network dedicated to the carrier virtual network to those layer one resources.

24. The at least one machine readable media of claim 23, wherein the predetermined format of messages is XML.

25. The at least one machine readable media of claim 24, wherein the steps of transmitting messages having a predetermined format to the management system of an accessing telecommunication network and of transmitting messages having a predetermined format to the management system of a dedicating telecommunication network comprises transmitting messages using a CORBA protocol.

26. The at least one machine readable media of claim 24, wherein the steps of transmitting messages having a predetermined format to the management system of an accessing telecommunication network and of transmitting messages having a predetermined format to the management system of a dedicating telecommunication network comprises transmitting messages using a JMS protocol.

27. The at least one machine readable media of claim 24, wherein the steps of transmitting messages having a predetermined format to the management system of an accessing telecommunication network and of transmitting messages having a predetermined format to the management system of a dedicating telecommunication network comprises transmitting messages using a Telnet protocol.

28. The at least one machine readable media of claim 23, wherein the predetermined format of messages is ASCII text.